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Natural vs synthetic surfactants in neonatal respiratory distress syndrome.**Halliday HL.**

Regional Neonatal Unit, Royal Maternity Hospital, Belfast, Northern Ireland.

This review examines the 11 randomised clinical trials that have compared different surfactant preparations. Seven trials, enrolling 2488 infants with respiratory distress syndrome (RDS), compared the natural surfactant beractant (Surfactant) with the synthetic surfactant colfosceril palmitate (Exosurf Neonatal). Infants treated with beractant had lower oxygen requirements for at least 3 days than those treated with colfosceril palmitate. The infants treated with beractant also had lower risks of neonatal mortality [odds ratio (OR) 0.81; 95% confidence interval (CI) 0.65 to 1.01], retinopathy of prematurity (OR 0.81; 95% CI 0.66 to 0.99), and the combined endpoint of death or bronchopulmonary dysplasia (OR 0.86; 95% CI 0.75 to 0.99), compared with those treated with colfosceril palmitate. Calf lung surfactant extract (CLSE; Infasurf), another natural surfactant, has been compared with colfosceril palmitate in 2 studies: in one as prophylaxis and in the other as rescue therapy. Similar, although nonsignificant, advantages were found for the natural surfactant compared with the synthetic surfactant. In 6 of these 9 trials there was a significant reduction in the odds of pulmonary air leaks (OR 0.53; 95% CI 0.41 to 0.64) for infants treated with natural compared with synthetic surfactants. In 7 trials (3554 infants) comparing natural and synthetic surfactants to treat RDS (6 comparing beractant and colfosceril palmitate, and one CLSE and colfosceril palmitate), there was a significantly reduced risk of neonatal mortality (OR 0.80; 95% CI 0.66 to 0.97) with natural compared with synthetic surfactant treatment. In 2 further trials, different natural surfactant preparations have been compared. Reduced oxygen needs for 24 hours after treatment were found for CLSE and Curosulf (porcine-derived lung surfactant, PLS) when each was compared with beractant. Apparent longer term benefits from these surfactants were not statistically proven. Further trials are needed to be certain of the differences between the various surfactant preparations.

Publication Types:

- Review
- Review, Tutorial

PMID: 8808165 [PubMed - indexed for MEDLINE]

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